



THE JOINT CHIEFS OF STAFF
WASHINGTON, D.C. 20301

SM-7-82

11 January 1982

MEMORANDUM FOR: Chief of Staff, US Army
Chief of Naval Operations
Chief of Staff, US Air Force
Commandant of the Marine Corps
Commander in Chief, Aerospace Defense Command
Commander in Chief, Atlantic
US Commander in Chief, Europe
Commander in Chief, Military Airlift Command
Commander in Chief, Pacific
Commander in Chief, US Readiness Command
Commander in Chief, US Southern Command
Commander in Chief, Strategic Air Command
Commander, Rapid Deployment Joint Task Force
Director, Defense Communications Agency
Director, Defense Intelligence Agency
Director, Defense Logistics Agency
Director, Defense Mapping Agency
Director, Defense Nuclear Agency
Director, National Security Agency/
Chief, Central Security Service

Subject: Policy and Procedures for Management of Joint Command
and Control Systems

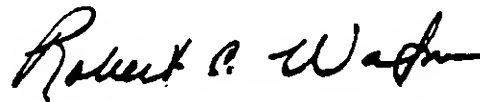
1. The Joint Chiefs of Staff have reviewed current directives dealing with the management (exclusive of operations, maintenance, training, and logistics support) of joint C2 systems in light of recent tasking. That review has resulted in the attached consolidated statement of policy and procedures, which provides a top-level means of harmonizing resources with evolving threats, technology, and missions through a rationalized statement of validated requirements.
2. The C2 Five-Year Summary Plan, established as part of the procedures, implements guidance* for the Joint Chiefs of Staff to take the lead to develop Defensewide plans that highlight cross-Service, cross-command, cross-program, and international requirements.
3. The joint C2 functional tasks, general objectives, and responsibilities of DOD components have been established as a matter of policy. The procedures provide common channels and a single, coherent set of documents to establish specific objectives, identify deficiencies, translate the deficiencies into statements of

1-11-82 306/46
JOINT CHIEFS OF STAFF
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requirement, validate requirements, recommend approval for the implementation, monitor the implementation, and evaluate performance.

4. The C3S Systems Directorate, OJCS, will implement the attached procedures and will initiate actions to revise the appropriate documents to eliminate duplication of procedures and insure consistency of policy.

For the Joint Chiefs of Staff:



ROBERT C. WATSON
Colonel, USMC
Acting Secretary

Attachment

Reference

* Memorandum by the Deputy Secretary of Defense, 12 June 1981,
"The Planning Phase of the DOD PPB System"

POLICY AND PROCEDURES FOR MANAGEMENT OF
JOINT COMMAND AND CONTROL SYSTEMS

FOREWORD	<u>1</u>
This document provides a consolidated statement of policy and	<u>2</u>
common procedures for the management of joint C2 systems and	<u>3</u>
C2 systems with joint/combined implications. Joint C2 systems	<u>4</u>
provide the NCA and the commanders of the unified and	<u>5</u>
specified commands with the ability to conduct joint and	<u>6</u>
combined operations. In addition to joint C2 systems,	<u>7</u>
command, control, and communications systems and equipment	<u>8</u>
with joint implications are those that:	<u>9</u>
a. Are intended to provide NCA connectivity.	<u>10</u>
b. Have been designated by the Joint Chiefs of Staff or	<u>11</u>
higher authority as systems/equipment having cross-Service,	<u>12</u>
cross-command, cross-program, or international implications	<u>13</u>
or that are of special interest. This includes prioritiza-	<u>14</u>
tions by a commander of a unified or specified command.	<u>15</u>
Commonality of C2 functional tasks, objectives, and responsi-	<u>16</u>
bilities is established as a matter of policy. The procedures	<u>17</u>
provide common channels and a single set of documents to	<u>18</u>
establish objectives, identify deficiencies, translate the	<u>19</u>
deficiencies into statements of requirements, validate the	<u>20</u>
requirements, recommend approval for implementation, monitor	<u>21</u>
the achievement of capabilities, and evaluate performance.	<u>22</u>
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	<u>31</u>

<u>CONTENTS</u>	<u>PAGE NO.</u>
1. General Considerations	1
2. Tasks Supported by Command and Control Systems	3
3. General Objectives for Command and Control System Elements	7
4. Management Concept for Joint Systems and Equipment	11
a. General	11
b. Responsibilities	12
c. Procedures	13
(1) Establishing Objectives	13
(2) Identification of a Deficiency	13
(3) Translation of the Deficiency Into a Statement of Requirements	13
(4) Validation of the Statement of Requirements	14
(5) Approval of the Implementation Proposal	14
(6) Monitorship of Implementation to Fielding	15
(7) Evaluating Performance	15
d. Classification of Joint Command and Control Systems and Systems/Equipment With Joint Implications	15
(1) General	15
(2) Classification	16
(a) Joint Command and Control Systems/Equipment	16
(b) Systems/Equipment With Joint Implications	17
Appendices	A-1
Appendix A References	A-1
Appendix B Outline and Submission Schedule of Command and Control System Master Plans, Summary Plans, and Programs	B-1
Appendix C Format for the Submission of Required Operational Capabilities	C-1
Appendix D Procedures for the Modification, Improvement, and Introduction of Joint C2 Systems	D-1
Appendix E Format for Technical Analysis and Cost Estimate for Operational Requirements	E-1
Appendix F Command and Control Five Year Summary Plan	F-1

POLICY AND PROCEDURES FOR MANAGEMENT OF
JOINT COMMAND AND CONTROL SYSTEMS

1. General Considerations

a. The NCA exercises operational direction and administrative support of US forces worldwide, under all force postures. The capability to exercise these functions is provided by interoperating command and control (C2) systems, which also provide appropriate capabilities at the various command echelons for which they were designed. The total capability created by these interoperating systems is not a single system, nor is it planned to become one. Some C2 systems are dedicated to the support of the NCA and the Joint Chiefs of Staff; however, for the most part, C2 systems are designed, developed, procured, and employed to satisfy mission requirements of the Service or command that normally uses them. At any given time, connectivity of the systems is structured to support the information exchange and command communications requirements of the prevailing situation. Therefore, compatibility of C2 procedures and interoperability of C2 systems and the communications supporting them are essential.

b. A basic consideration for implementation of joint C2 systems is the assumption that major losses in US warmaking and C2 capabilities, as well as serious disruption of US policymaking capabilities, are possible. Such losses should not prevent the NCA and other commanders from controlling the execution of military options and performing the C2 functional tasks. Therefore, physical and functional survivability of the C2 functions and of

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interconnecting communications is a critical planning factor. 1
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c. A corporate goal of the Department of Defense is to 3
acquire a flexible, survivable, and effective worldwide 4
C2 capability supported by adequate interconnecting com- 5
munications, where required. The development of concepts 6
and procedures, the acquisition of material, the establish- 7
ment of facilities, and the training of personnel to 8
achieve this goal may cut across established organizational 9
lines of responsibility. Conceptually, C2 equipment 10
should form an entity; however, in its aggregate it is 11
too amorphous and evolutionary for consideration as a 12
single major acquisition. Because of the various major 13
procurements needed for implementation of C2 capabilities, 14
close coordination among DOD components is mandatory to 15
insure that C2 and supporting communications programs 16
maximize benefits to be derived and are phased to be 17
available at a useful time. 18
d. The urgency, during crisis, of communicating warning 19
and intelligence from all sources to the NCA and of pass- 20
ing decisions and commands to the military forces requires 21
that systems be responsive and reliable, and as surviv- 22
able as the NCA and as the commands and forces they 23
support. Compatibility of procedures and interoperability 24
of equipment are mandatory in furthering success of 25
joint and combined operations. Several factors dictate 26
special emphasis on management procedures to minimize 27
unnecessary duplication of systems without enforcing 28
standardization where it does not provide clear advantages. 29
These factors are: resource limitations; an evolving 30
technological base; multiple requirements for interfaces; 31

the need for compatible procedures throughout the chain of	1
command; and the need to involve end users in the	2
evolutionary growth of existing capabilities.	3
2. <u>Tasks Supported by Command and Control Systems</u>	4
a. Command and control systems, regardless of the level of	5
command supported, accomplish their purpose by providing	6
the means to perform all or applicable portions of the	7
following tasks:	8
(1) <u>Monitor the Current Situation, Including the Status</u>	9
<u>of US and Non-US Forces.</u> This is the process of	10
sensing critical information concerning the political,	11
economic, and military situation on a worldwide basis.	12
The process requires all-source information collection	13
and processing to recognize unique events, to identify	14
changes in the status of US and non-US force capa-	15
bilities and in the politico-economic environment.	16
The term "all-source" means total information as pro-	17
vided from all available resources without regard to	18
functional origin. Situation monitoring includes	19
assessment of environmental conditions, logistic capa-	20
bilities, status of forces, intelligence, and plans	21
as they affect allocation and expenditure of	22
resources in support of projected national policy	23
initiatives and force activity levels. It includes	24
direction of strategic and tactical reconnaissance	25
activities and requires a continuing assessment of	26
the integrity of C2 systems.	27
(2) <u>Formulate Responses to Warning and Threat Assess-</u>	28
<u>ment.</u> The process includes evaluation of enemy	29
intentions, current enemy capability to carry out	30
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intentions, and the selection, adaptation, or formulation of plans responsive to the specific situation.	<u>1</u>
(a) In the strategic sense, the process is initiated by reports of critical indications of change in the level or direction of unfriendly economic, political, or military activity in terms of specific threats to US or allied forces, territory, or national interests.	<u>2</u> <u>3</u> <u>4</u> <u>5</u> <u>6</u> <u>7</u> <u>8</u>
(b) In the tactical sense, the process is initiated by reporting and displaying information that an enemy has initiated hostilities. It provides information on the origin, objectives, and nature of the attack and includes subsequent confirmation of the validity of the warning. It provides the basis for relating attack indications to planned options for initial response.	<u>9</u> <u>10</u> <u>11</u> <u>12</u> <u>13</u> <u>14</u> <u>15</u> <u>16</u>
(3) <u>Select Options, Employ Forces, and Execute Operation Plans</u>	<u>17</u> <u>18</u>
(a) For deterrence, this is the process of perceiving the pattern of enemy response to US activity and assessing the impact of US activity on the enemy posture and capability to initiate hostilities. It includes issuing force alerts and monitoring achievement of increased readiness status. It also includes planning for dynamic employment of forces to counter enemy initiatives and recommending a course of action that best meets the situation. Direction and control of forces must provide for the selected force employment options to be implemented as intended.	<u>19</u> <u>20</u> <u>21</u> <u>22</u> <u>23</u> <u>24</u> <u>25</u> <u>26</u> <u>27</u> <u>28</u> <u>29</u> <u>30</u> <u>31</u>

(b) For force employment to control escalation,	<u>1</u>
the process includes selecting appropriate	<u>2</u>
responses, implementing operation plans, perceiving	<u>3</u>
the changes in patterns of enemy response to US	<u>4</u>
activity, and assessing the impact and effective-	<u>5</u>
ness of US activity in terms of the enemy	<u>6</u>
response. It also includes planning for dynamic	<u>7</u>
alternatives to force activities, directing	<u>8</u>
deployment and redeployment of forces, and	<u>9</u>
monitoring the US force activities in response	<u>10</u>
both to their own direction and to enemy activ-	<u>11</u>
ities.	<u>12</u>
(c) For force employment in response to hostili-	<u>13</u>
ties, the process includes determining and	<u>14</u>
directing US force activities in response to	<u>15</u>
tactical warning and recommending an appropriate	<u>16</u>
response based on attack assessment.	<u>17</u>
(4) <u>Perform Attack, Strike, Damage, and Residual</u>	<u>18</u>
<u>Capability Assessment</u>	<u>19</u>
(a) The performance of attack assessment includes	<u>20</u>
the process of deriving projected attack patterns	<u>21</u>
and impact points from sensed attack events to	<u>22</u>
determine the character and expected effective-	<u>23</u>
ness of an attack. The process includes evaluation	<u>24</u>
of the effects of the projected attack on US	<u>25</u>
force capability.	<u>26</u>
(b) The performance of strike, damage, and	<u>27</u>
residual capability assessment includes the	<u>28</u>
process of acquiring strike and damage reports,	<u>29</u>
correlating them to provide a perception of the	<u>30</u>
extent of damage to friendly and enemy forces,	<u>31</u>

and evaluating the impact of damage upon enemy	<u>1</u>
and friendly force residual capabilities and	<u>2</u>
resources. The process also includes identifica-	<u>3</u>
tion of requirements and priorities for recovery	<u>4</u>
and reconstitution of US forces.	<u>5</u>
(5) <u>Reconstitute and Redirect Forces.</u> This process	<u>6</u>
includes acting on status reports concerning the	<u>7</u>
location, condition, and availability of military	<u>8</u>
resources after attack. The process includes	<u>9</u>
reviewing the progress of directed activities	<u>10</u>
and planning subsequent force employment options	<u>11</u>
based on damage assessment and residual capabilities.	<u>12</u>
(6) <u>Terminate Hostilities and Active Operations.</u>	<u>13</u>
This is the process of perceiving a willingness	<u>14</u>
on the part of the enemy to negotiate termination	<u>15</u>
of hostilities, projecting the results of current US	<u>16</u>
and enemy activity, and assessing enemy intent and	<u>17</u>
residual capability. The process includes develop-	<u>18</u>
ing plans for recovery and redeployment to deter	<u>19</u>
renewed conflict and monitoring the achievement of	<u>20</u>
the directed recovery posture to insure that the	<u>21</u>
conflict terminates under conditions favorable to	<u>22</u>
the United States.	<u>23</u>
b. These generic tasks define the purpose of C2 systems	<u>24</u>
and apply to the full spectrum of operations, at all	<u>25</u>
levels of command. A command level may at any given	<u>26</u>
time require the definition of subtasks which more	<u>27</u>
closely delineate command-unique functions and which	<u>28</u>
amplify the above generic tasks with scenario or	<u>29</u>
command level specifics.	<u>30</u>
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3. <u>General Objectives for Command And Control System Elements.</u>	<u>1</u>
a. C2 systems perform common tasks within the US command	<u>2</u>
hierarchy in the pursuit of common missions. Hence,	<u>3</u>
individual systems must exhibit certain attributes	<u>4</u>
to insure that C2 is not the limiting factor in US war-	<u>5</u>
fighting capability but rather provides options for execution	<u>6</u>
of plans and aids exploitation of battlefield opportunities.	<u>7</u>
The general objectives are stated below for each of the	<u>8</u>
C2 system elements. They are planning factors for the	<u>9</u>
identification of deficiencies in existing systems and	<u>10</u>
provide rationale for stating requirements. Although	<u>11</u>
presented by C2 system element, the entire list must be	<u>12</u>
considered in its relationship to the C2 functional	<u>13</u>
tasks so as to generate balanced capabilities within	<u>14</u>
systems.	<u>15</u>
b. The general objectives for the Joint Command and	<u>16</u>
Control System Elements are:	<u>17</u>
(1) <u>Command Facilities.</u> Achieve survivability	<u>18</u>
through mobility, redundancy, hardness, deception,	<u>19</u>
dispersal, or combinations thereof for continuity of	<u>20</u>
operations under the worst probable conditions of	<u>21</u>
conflict, including nuclear, biological, and	<u>22</u>
chemical attacks.	<u>23</u>
(a) Within any definable command structure, at	<u>24</u>
least one command center must survive the threat	<u>25</u>
projected by latest JCS-approved documents.	<u>26</u>
(b) The surviving command center(s) must be capa-	<u>27</u>
ble of supporting all mission-required C2	<u>28</u>
functional tasks of the supported command	<u>29</u>
throughout all phases of any conflict.	<u>30</u>
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(c) Alternate operating facilities are required 1
to assure the survival of a military command and 2
control capability. The physical size of 3
alternate facilities may influence the capability 4
that can be incorporated. In addition, adverse 5
conditions for communications will exist during 6
hostilities. Nevertheless, alternate facilities 7
must meet the following basic operating require- 8
ments: 9

1. Operate continuously with qualified watch 10
teams, maintaining a readiness to support 11
the general war command function. 12
2. Provide immediate access to a continuously 13
updated data base of information required 14
for direction of the US military forces. 15
This capability can result in part from using 16
information from the primary command centers. 17
However, reliance on primary command centers 18
should not limit or degrade the capability 19
to operate independently with data received 20
directly from external sources. 21
3. Transition rapidly without prior warning 22
from a standby mode of operation to per- 23
forming as the primary military center. 24
When an alternate becomes the primary 25
center, other facilities will continue to 26
maintain their capability to assume the 27
primary center function, if required. 28
4. Communicate continuously with other major 29
facilities. 30
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(2) <u>Communications</u> . Achieve flexibility, surviv-	<u>1</u>
ability, and security (including physical) of commu-	<u>2</u>
nications in support of operations throughout the	<u>3</u>
spectrum of force postures.	<u>4</u>
(a) Communications must survive the disruptive	<u>5</u>
physical and electromagnetic effects incident to	<u>6</u>
nuclear attacks.	<u>7</u>
(b) Telecommunications planning should provide	<u>8</u>
for the use of allied, commercial, and other-	<u>9</u>
agency communications systems by US forces.	<u>10</u>
US unilateral telecommunications must be pro-	<u>11</u>
vided in those cases where US policy dictates.	<u>12</u>
(c) The communications should be flexible in	<u>13</u>
order to provide durability and to permit	<u>14</u>
reconstitution and restoration using all	<u>15</u>
surviving systems. Flexibility includes the	<u>16</u>
ability to limit and manage traffic into	<u>17</u>
bandwidth-constrained systems.	<u>18</u>
(d) Communications must continue to operate	<u>19</u>
under severe ECM conditions through use of	<u>20</u>
ECCM design features and operating procedures.	<u>21</u>
(3) <u>Warning Systems</u>	<u>22</u>
(a) Provide warning regardless of enemy tactics	<u>23</u>
or technology, natural disturbance, or US	<u>24</u>
situation through a system combination of	<u>25</u>
availability, detection probability, and	<u>26</u>
geographic coverage of all known and probable	<u>27</u>
attack launch points.	<u>28</u>
(b) Insure that neither a strategic weapon	<u>29</u>
impact on the United States nor an attack upon	<u>30</u>
	<u>31</u>

a US satellite occurs without prior warning	<u>1</u>
having been received by the NCA.	<u>2</u>
(c) Insure that warning/characterization information has sufficient validity so that immediate force preservation actions can be initiated for those elements where appropriate.	<u>3</u> <u>4</u> <u>5</u> <u>6</u>
(d) Provide credible warning/characterization information as soon as possible after initiation of an attack and continually thereafter.	<u>7</u> <u>8</u> <u>9</u>
(e) Provide sufficiently accurate data to support meaningful sensor information correlations.	<u>10</u> <u>11</u>
(4) <u>Command and Control Procedures</u>	<u>12</u>
(a) Refine and continuously evaluate procedures in order to reduce redundant information requirements; eliminate unnecessary reports; and provide complete, accurate, reliable, and timely information to the NCA and other appropriate decisionmakers.	<u>13</u> <u>14</u> <u>15</u> <u>16</u> <u>17</u> <u>18</u>
(b) Provide the capability to support dynamic operations and nuclear employment planning. Support should be based on current intelligence, warning, attack, residual capability, and damage assessment, force status and employment, and enemy tactics information.	<u>19</u> <u>20</u> <u>21</u> <u>22</u> <u>23</u> <u>24</u>
(5) <u>Command and Control Data Collection and Processing</u>	<u>25</u>
(a) Achieve a user-oriented data management system capable of supporting centralized and distributed data bases and performing the directory and locator functions related to remote access of the data bases.	<u>26</u> <u>27</u> <u>28</u> <u>29</u> <u>30</u> <u>31</u>

(b) Achieve a simple, highly responsive,	<u>1</u>
standard data update, retrieval, and manipula-	<u>2</u>
tion capability for use by authorized functional	<u>3</u>
users via remote terminal in support of	<u>4</u>
decisionmakers.	<u>5</u>
(c) Achieve compatibility and interoperability	<u>6</u>
through standard terminology, data elements,	<u>7</u>
codes, formats, symbology, system and applica-	<u>8</u>
tion software, data base structures, and	<u>9</u>
procedures.	<u>10</u>
(d) Achieve secure ADP system interaction	<u>11</u>
among ADP facilities and interaction directly	<u>12</u>
with other systems (i.e., NATO Command and	<u>13</u>
Control Information System, DOD Intelligence	<u>14</u>
Information System, and generally supporting	<u>15</u>
functional ADP systems--such as logistics/	<u>16</u>
personnel--often used in crises).	<u>17</u>
(e) Achieve ADP connectivity, data timeliness,	<u>18</u>
reliability, credibility and availability, and	<u>19</u>
operational procedures to provide an ad hoc	<u>20</u>
crisis action planning capability.	<u>21</u>
4. <u>Management Concept for Joint Command and Control Systems</u>	<u>22</u>
<u>and Equipment</u>	<u>23</u>
a. <u>General.</u> Some of the references in Appendix A stipulate	<u>24</u>
characteristics that C2 systems and equipment must possess	<u>25</u>
to provide functional integrity and robustness. These	<u>26</u>
characteristics, together with compatibility of procedures	<u>27</u>
and interoperability of equipment, allow routine and	<u>28</u>
predictably reliable structuring of DOD C2 systems into	<u>29</u>
networks to support the information exchange and command	<u>30</u>
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communications requirements of any given situation. This paragraph:

- (1) Lists management responsibilities common to all DOD components for certain C2 systems and equipment.
- (2) Establishes the procedures to be used for exercising the common responsibilities.
- (3) Defines the C2 systems and equipment to which the common responsibilities and procedures apply.

The procedures are to guide all DOD components in accomplishing their common responsibilities within the framework of the consolidated policy established in the preceding paragraphs. The procedures described in the appendices are intended to:

- (1) Enhance through coordination the ability to achieve the corporate DOD goal of obtaining a flexible, survivable, and effective C2 capability.
- (2) Provide periodic top-level review of programs in achieving balance in the C2 capability, including the requirements of commanders of unified and specified commands.
- (3) Permit integration of new characteristics (as concepts evolve) into the overall capability rather than as isolated fixes.
- (4) Highlight deficiencies/gaps for remedial action.
- (5) Reduce documentation.

b. Responsibilities

(1) The references in Appendix A identify certain managerial responsibilities which are shared by all DOD components. These responsibilities are:

- (a) Establishing objectives.
- (b) Identifying deficiencies.

(c) Translating deficiencies into statements of requirements.	<u>1</u>
(d) Validating the requirements.	<u>2</u>
(e) Recommending an implementation.	<u>3</u>
(f) Monitoring the implementation through fielding of a capability.	<u>4</u>
(g) Testing and evaluating the capability.	<u>5</u>
(2) Executive authority for individual managerial functions may vary according to the specific item being addressed. However, as a matter of policy, for the systems and equipment in subparagraph 4d, all DOD components share in the process leading to implementation of the capability.	<u>6</u>
c. <u>Procedures.</u> The following common procedures are established to carry out the responsibilities enumerated above:	<u>7</u>
(1) <u>Establishing Objectives.</u> JCS Pubs 11, 12, and 19 and Annex C (Command, Control, and Communications) to the JSPD state the joint C2 objectives. Objectives may be periodically approved by appropriate authority and will, until reflected in the above objectives documents, represent additional guidance.	<u>8</u>
(2) <u>Identification of a Deficiency.</u> Appendix B (Outline and Submission Schedule of C2 System Master Plans, Summary Plans, and Programs) provides the primary vehicle for the commanders of the unified and specified commands to identify deficiencies to the Joint Chiefs of Staff on a yearly basis. In cases of urgency, deficiencies may be identified and submitted at any time in accordance with Appendix C.	<u>9</u>
(3) <u>Translation of the Deficiency Into a Statement of Requirements.</u> Appendix C (Format for the Submission	<u>10</u>

of Required Operational Capabilities) provides the
vehicle for submission of a statement of requirements
in nontechnical language, together with justification
and, optionally, a description of characteristics.
A mandatory distribution list provides for coordination.
This format is to be used when a requirement is to be
validated by the joint process in accordance with the
references of Appendix A. When, in accordance with the
references of Appendix A, validation of a requirement
with joint implications is a Service responsibility,
the Service-validated statement of requirement will be
coordinated with the addressees listed in Part III of
Appendix C. While the format of the Service-validated
statement of requirement may vary from that in Appendix
C, the same data elements must be addressed to permit
full coordination.

(4) Validation of the Statement of Requirements.

Appendix D (Policy for the Modification, Improvement,
and Introduction of Joint C2 Systems) provides the
policy, procedures, and responsibilities of DoD com-
ponents for validation of joint requirements.

(5) Approval of the Implementation Proposal. Appendix E
(Format for Technical Analysis and Cost Estimate for
Operational Requirements) provides the procedures,
responsibility, and documentation for approving and
assigning implementation proposals for operational
requirements validated under joint procedures. The data
elements of Appendix E (albeit not necessarily in the
format of that Appendix) are to be provided to the
Joint Chiefs of Staff when the directives in Appendix
A require that Service/Agency validation information

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be provided to the Joint Chiefs of Staff for supervision	<u>1</u>
of the validation process.	<u>2</u>
(6) <u>Monitorship of Implementation to Fielding.</u>	<u>3</u>
Appendix F (Command and Control Five Year Summary Plan)	<u>4</u>
provides the vehicle for an annual coordinated review	<u>5</u>
of the evolutionary improvement of joint C2 systems	<u>6</u>
and equipment having joint implications as defined in	<u>7</u>
subparagraph 4d. It also permits assessment of how	<u>8</u>
well the objectives are being met with decentralized	<u>9</u>
implementation of OSD centralized C2 direction.	<u>10</u>
(7) <u>Evaluating Performance.</u> JCS MOP 183 and JCS Pub 19	<u>11</u>
contain provisions and methodology for evaluating com-	<u>12</u>
mand, control, and communications systems. A schedule	<u>13</u>
of evaluation events for those systems is published	<u>14</u>
annually. It provides a composite listing of JCS-	<u>15</u>
directed and JCS-coordinated exercises and tests that	<u>16</u>
are designated as command, control, and communications	<u>17</u>
system evaluation events and evaluation objectives for	<u>18</u>
those events. Inputs for the Schedule of Evaluation	<u>19</u>
Events from the unified and specified commands, the	<u>20</u>
Services, and Defense agencies are requested when the	<u>21</u>
schedule is being prepared. The command, control, and	<u>22</u>
communications systems evaluation objectives listed	<u>23</u>
for each scheduled event are selected, as appropriate	<u>24</u>
within the constraints of the exercise, to permit	<u>25</u>
evaluation of strategic, theater/tactical, and Defense-	<u>26</u>
wide systems.	<u>27</u>
d. <u>Classification of Joint Command and Control Systems</u>	<u>28</u>
<u>and Systems/Equipment With Joint Implications</u>	<u>29</u>
(1) <u>General.</u> This paragraph specifies those joint C2	<u>30</u>
systems and systems/equipment with joint implications	<u>31</u>
to which the procedures of subparagraph 4c, above,	<u>32</u>
apply.	<u>33</u>

(2) <u>Classification</u>	<u>1</u>
(a) <u>Joint Command and Control Systems/Equipment.</u>	<u>2</u>
Joint C2 systems and equipment consist of:	<u>3</u>
<u>1.</u> The National Military Command System.	<u>4</u>
<u>2.</u> C2 systems of the unified and specified commands.	<u>5</u>
<u>a.</u> Command and control systems of the subordinate unified commands.	<u>6</u>
<u>b.</u> Command and control systems of the headquarters of the service component commands.	<u>7</u>
<u>c.</u> Command and control systems of the headquarters of joint task forces, when established and assigned.	<u>10</u>
<u>3.</u> C2 related management/information systems of the headquarters of the Military Departments having joint implications.	<u>11</u>
<u>4.</u> C2 support systems of DOD agencies.	<u>12</u>
<u>5.</u> Command, control, and communications assets controlled by the Joint Chiefs of Staff. Certain deployable C3 assets are controlled by the Joint Chiefs of Staff for use in crises, contingencies, and special missions for augmentation in support of the local commander.	<u>13</u>
<u>6.</u> Warning Systems, communications networks, ADP capabilities, and procedures described in reference 5, Appendix A.	<u>14</u>
<u>7.</u> The National Communications System.	<u>15</u>
<u>8.</u> Defense-wide C2 systems/equipment. Defense-wide C2 systems/equipment include:	<u>16</u>
<u>a.</u> The Defense Communications System.	<u>17</u>
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<u>b.</u> The Military Satellite Communication System.	<u>1</u>
<u>c.</u> The Tri-Service Tactical Communications (TRI-TAC) equipment.	<u>2</u>
<u>d.</u> Communications security systems.	<u>3</u>
<u>e.</u> C2 systems supporting command, control, and communications countermeasures.	<u>4</u>
<u>f.</u> Navigation and position location systems.	<u>5</u>
<u>g.</u> Identification, friend or foe, systems.	<u>6</u>
<u>h.</u> Meteorological systems.	<u>7</u>
<u>i.</u> Interoperability systems.	<u>8</u>
(b) <u>Systems/Equipment With Joint Implications.</u>	<u>9</u>
References 7 and 20, Appendix A, establish the context in which certain systems and equipment are considered to have joint implications. To the extent that tactical command, control, and communications equipment falls under the purview of those references, they will be covered by the policy and procedures of the preceding paragraphs. In addition to the provisions of references 7 and 20, the following types of equipment have joint implications and come under the purview of the policy and procedures established in preceding paragraphs:	<u>10</u>
<u>1.</u> Equipment that is intended to provide NCA connectivity.	<u>11</u>
<u>2.</u> Equipment that is intended to provide connectivity for the commanders of unified and specified commands.	<u>12</u>
<u>3.</u> Systems and equipment that have been designated by the Joint Chiefs of Staff or higher	<u>13</u>

authority as having cross-Services, cross-pro-
gram, cross-command, or international implica-
tions or that are of special interest. This
includes priority items of the commanders of
unified and specified commands.

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APPENDIX A

REFERENCES

1. JCS Pub 2, 1 October 1974, "Unified Action Armed Forces."
2. JCS Pub 10, 11 April 1980, "Tactical Command and Control, and Communications Systems Standards (U)."
3. JCS Pub 11, 1 April 1968, "Tactical Communications Planning Guide (U)."
4. JCS Pub 12, 1 April 1974, "Tactical Command and Control Planning Guidance and Procedures for Joint Operations."
5. JCS Pub 19, "WWMCCS Objectives and Management Plan," Volumes I, II, III, IV, V, and VI and their separately published appendices (latest editions).
6. DOD Directive 4630.1, 24 April 1968, "Programming of Major Telecommunications Requirements."
7. DOD Directive 4630.5, 28 January 1967, "Compatibility and Commonality of Equipment for Tactical Command and Control, and Communications."
8. DOD Directive 5000.1, 19 March 1980, "Major System Acquisition."
9. DOD Directive 5000.2, 19 March 1980, "Major System Acquisition Process."
10. DOD Directive 5000.3, 26 December 1979, "Test and Evaluation."
11. DOD Directive 5100.1, 26 January 1980, "Functions of the Department of Defense and its Major Components."
12. DOD Directive 5100.30, 2 December 1971, "Worldwide Military Command and Control System (WWMCCS)."
13. DOD Directive 5100.79, 21 November 1975, "Worldwide Military Command and Control System Engineer."

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14. DOD Instruction 5100.80, 1 December 1975, "Worldwide Military Command and Control System (WWMCCS) Evaluation Program."	<u>1</u>
	<u>2</u>
	<u>3</u>
15. DOD Directive 5105.19, 10 August 1978, "Defense Communications Agency (DCA)."	<u>4</u>
	<u>5</u>
16. DOD Directive 5105.44, 9 October 1973, "Military Satellite Communications (MILSATCOM) Systems Organization."	<u>6</u>
	<u>7</u>
17. DOD Instruction 7250.10, 10 January 1980, "Implementation of Reprogramming of Appropriated Funds."	<u>8</u>
	<u>9</u>
18. JCS Memorandum of Policy No. 112, 13 February 1978, "Military Telecommunications Agreements Between the United States and Regional Defense Organizations or Friendly Foreign Nations."	<u>10</u>
	<u>11</u>
	<u>12</u>
	<u>13</u>
19. JCS Memorandum of Policy No. 131, (latest revision), "Joint Communications Security Policy (U)."	<u>14</u>
	<u>15</u>
20. JCS Memorandum of Policy No. 160, 1 November 1976, "Compatibility and Commonality of Equipment for Tactical Command and Control and Communications."	<u>16</u>
	<u>17</u>
	<u>18</u>
21. JCS Memorandum of Policy No. 167, 14 November 1975, "Mobile/Transportable Communications Assets Controlled by the Joint Chiefs of Staff."	<u>19</u>
	<u>20</u>
	<u>21</u>
22. JCS Memorandum of Policy No. 183, 5 November 1979, "Command, Control, and Communications Systems Evaluation Program."	<u>22</u>
	<u>23</u>
23. JCS Memorandum of Policy No. 185, 9 December 1980, "Command, Control, and Communications Countermeasures (U)."	<u>24</u>
	<u>25</u>
24. JCS Memorandum of Policy No. 178, 1 May 1978, "Military Satellite Communications Systems."	<u>26</u>
	<u>27</u>
25. MJCS-209-83, "Defense Communications System Five Year Program Joint Validation Procedures."	<u>28</u>
	<u>29</u>
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APPENDIX B	<u>1</u>
OUTLINE AND SUBMISSION SCHEDULE OF COMMAND AND CONTROL SYSTEM MASTER PLANS, SUMMARY PLANS, AND PROGRAMS	<u>2</u>
	<u>3</u>
1. Plans are submitted to the Chairman, Joint Chiefs of Staff, by the commander of each unified or specified command, by the Service headquarters of the Military Departments, and by the Defense agencies.	<u>4</u> <u>5</u> <u>6</u> <u>7</u>
2. The plan submitted by a commander of a unified or specified command for approval is called a "Command and Control System Master Plan." This is a document which sets forth the concept, description, and general improvement plan for the C2 system. It describes the composition of the C2 system and the functional and organizational relationships among all elements of the system. It provides guidance and objectives to the component or subordinate commands for the development and operation of the system, describes specific required operational capabilities (ROCs) for improvement of the system, and prioritizes the ROCs.	<u>8</u> <u>9</u> <u>10</u> <u>11</u> <u>12</u> <u>13</u> <u>14</u> <u>15</u> <u>16</u> <u>17</u> <u>18</u>
3. The plan submitted by a Service headquarters of a Military Department or by a Defense agency for information is called a "Command and Control System Summary Plan." This document sets forth, in summary form, the concept and description of the C2 management/information systems of the Service head- quarters of the Military Departments and the C2 communications networks of the Defense agencies. It describes the general composition and capabilities of the existing elements of the C2 system and presents an overview of the functional and organizational relationships related to interoperability with and responsiveness to the National Military Command System (NMCS).	<u>19</u> <u>20</u> <u>21</u> <u>22</u> <u>23</u> <u>24</u> <u>25</u> <u>26</u> <u>27</u> <u>28</u> <u>29</u> <u>30</u> <u>31</u>

4. The program submitted to the Secretary of Defense by the	<u>1</u>
Chairman of the Joint Chiefs of Staff for the improvement of	<u>2</u>
the NMCS is the "NMCS Five Year Master Objectives Program"	<u>3</u>
(NMCS FYMOP). This program lists all ROCs, both validated and	<u>4</u>
unvalidated, for the modification and improvement of the NMCS.	<u>5</u>
It also provides a basis for planning, programming and budget-	<u>6</u>
ing for a 5 year period. The NMCS FYMOP will be updated	<u>7</u>
and submitted annually in December.	<u>8</u>
5. Command and Control System Master Plans will be submitted	<u>9</u>
and updated at least annually in accordance with the follow-	<u>10</u>
ing schedule:	<u>11</u>
ADCOM--November	<u>12</u>
SAC--December	<u>13</u>
LANTCOM--January	<u>14</u>
PACOM--February	<u>15</u>
USEUCOM--November	<u>16</u>
USREDCOM--December	<u>17</u>
USSOUTHCOM--January	<u>18</u>
MAC--February	<u>19</u>
6. Command and Control System Summary Plans will be submitted	<u>20</u>
and updated at least annually in accordance with the follow-	<u>21</u>
ing schedule:	<u>22</u>
US Army--October	<u>23</u>
US Navy--November	<u>24</u>
US Air Force--December	<u>25</u>
US Marine Corps--January	<u>26</u>
DCA--February	<u>27</u>
DIA--October	<u>28</u>
DMA--November	<u>29</u>
DNA--December	<u>30</u>
DLA--December	<u>31</u>
NSA/CCS--February	<u>32</u>

APPENDIX C

FORMAT FOR THE SUBMISSION OF
REQUIRED OPERATIONAL CAPABILITIES

(The required operational capability (ROC) provides the originator of the joint C2 requirement an opportunity to express, in nontechnical language, the essential elements of the requirement. It should contain as much of the information indicated below as possible, based on best estimates. Part I is required with each ROC submission and should provide sufficient information for initial processing by the Joint Chiefs of Staff. Submission of Part II is optional. Additional information determined to be necessary will also be provided to the OJCS and to the Service/agency evaluating the ROC. The mandatory distribution of the ROC (Part III) is intended to provide initial coordination.)

REQUIRED OPERATIONAL CAPABILITY FOR:

Insert short descriptive title of the requirement.

Include security classification, if applicable.

Unclassified titles are desired.

PART I (REQUIRED)

SECTION I. STATEMENT OF REQUIREMENT

1. Description. Describe the requirement by indicating:
 - a. General characteristics in sufficient detail to present a clear picture of the requirement. Characteristics stated will represent mandatory or minimum acceptable performance features unless indicated as "desirable"; i.e., those features to be achieved without disproportionate increase in cost, complexity, and leadtime while maintaining the required standards of reliability and maintainability.
 - b. The effect the ROC will have on the capability to support the National Military Command System.
 - c. Whether the requirement is for a new item or a replacement. Indicate its relationships to other ROCs and to other items or material in use.

- d. Broad concept of employment of the requirement (how, when, where, and by whom). 1
2
- e. Other standard or developmental equipment with which the requirement must be compatible. 3
4
- f. Hardening required against nuclear, electromagnetic, chemical, and biological warfare. 5
6
- g. Recommended security classification of the requirement and of the development effort, and other restrictions. 7
8
- h. Desired calendar year of initial/full operational capability. 9
10
- i. Recommendations for Service/Defense agency responsible for development and funding. 11
12

SECTION II. JUSTIFICATION 13

2. Reason for Requirement. State why existing system cannot satisfy the requirement. Indicate objectives, missions, or functions that will be prejudiced by failure to develop the proposed requirement. Relate the ROC to one or more specific C2 system objectives. State why it will make a major contribution to effective command and control for the period in which it is required. Cite enemy threat from approved intelligence estimates. Additionally, furnish information on: 14
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- a. Time-phasing of requirement in relation to present installation and future objectives. 22
23
 - b. Make reference to studies, exercise reports, or other documents which bear on the requirement. 24
25

SECTION III. OPERATIONAL CONCEPT, FEASIBILITY, AND PRIORITY 26

3. Operational Concept. Describe envisaged operational concept in sufficient detail to permit planning for integration into the overall C2 system. Include consideration of: 27
28
29
- a. Command centers for which the requirement is applicable and numbers required. 30
31

b. Whether continuous or intermittent operation is planned.	<u>1</u>
c. What satisfaction of the requirement will accomplish, such as effects achieved strategically, technically, or administratively.	<u>2</u> <u>3</u> <u>4</u> <u>5</u>
d. How and when the required capability will be operationally employed and controlled.	<u>6</u> <u>7</u>
e. How the new capability will operationally interface when employed with other systems as appropriate.	<u>8</u> <u>9</u>
f. What information must be exchanged, with appropriate comments regarding perishability, time sensitivity, fidelity, error rates, languages, and other elements which directly affect system architectures, engineering, design, and implementation.	<u>10</u> <u>11</u> <u>12</u> <u>13</u> <u>14</u>
4. <u>Technical Feasibility</u> . Specify feasibility studies, component development, or other technical data related to the requirement which will assist in determining the technical feasibility of the requirement. (After research of the user input, a technical feasibility statement and a statement regarding industrial potential to support a requirement will be made in the Technical Analysis/Cost Estimate, which is prepared by the supporting Service/Defense agency.)	<u>15</u> <u>16</u> <u>17</u> <u>18</u> <u>19</u> <u>20</u> <u>21</u> <u>22</u>
5. <u>Priority Category</u> . Prioritize the ROC in relation to other requirements of the command. Priorities furnish guidance on the degree of urgency associated with a requirement for programming and justification of funds and personnel in meeting the requirement.	<u>23</u> <u>24</u> <u>25</u> <u>26</u> <u>27</u>
PART II (OPTIONAL)	<u>28</u>
SECTION I. CHARACTERISTICS	<u>29</u>
6. <u>Performance Characteristics</u> . List specific performance characteristics to permit clear understanding of features	<u>30</u> <u>31</u>

that are "essential," to the capability's acceptance. List	<u>1</u>
also features that are "desirable." Performance characteris-	<u>2</u>
tics should provide sufficient guidance to form the basis for	<u>3</u>
technical characteristics and preliminary engineering design.	<u>4</u>
These characteristics influence the development of the	<u>5</u>
capability more than any other portion of the ROC. Describe	<u>6</u>
what the capability should do and specify both upper and	<u>7</u>
lower performance limits. As a general guide, include	<u>8</u>
applicable reliability characteristics and, as applicable:	<u>9</u>
a. Improvements expected in (1) efficiency of gathering,	<u>10</u>
processing, or disseminating information; (2) SIOP	<u>11</u>
execution or monitoring; or (3) support of the NCA or	<u>12</u>
other Command, Control, and Communications system users;	<u>13</u>
or (4) survivability or hardening.	<u>14</u>
b. A complete operational profile which describes func-	<u>15</u>
tions, time required to accomplish the functions,	<u>16</u>
dynamic actions or changes that occur, job title or	<u>17</u>
description of individual who will use the resulting	<u>18</u>
capability, and reaction time required.	<u>19</u>
7. <u>Security Considerations.</u> Describe those security require-	<u>20</u>
ments considered essential by users, including aspects of	<u>21</u>
OPSEC and COMSEC; e.g., transmission, emission, cryptographic,	<u>22</u>
and physical security elements. Insure that qualitative	<u>23</u>
COMSEC requirements are an integral part of the system	<u>24</u>
planning and development.	<u>25</u>
8. <u>Physical Characteristics.</u> Those characteristics considered	<u>26</u>
necessary by the user to influence development. Items to	<u>27</u>
include, as appropriate:	<u>28</u>
a. System weight limits.	<u>29</u>
b. Configuration, silhouette, dimensional and cube	<u>30</u>
limitations, crew space, and operator station layout.	<u>31</u>

c. Durability factors to indicate degree of ruggedness.	<u>1</u>
d. Security requirements to include TEMPEST considerations, if required.	<u>2</u>
e. Vulnerability characteristics, specifying hardening required or desired in terms of nuclear effects environments in which the material would be required to survive.	<u>3</u>
The effect levels specified should include blast, ground shock, thermal radiation, nuclear radiation, and electromagnetic pulse. Consideration should also be given to any shock-mounting requirements for sensitive equipment.	<u>4</u>
f. Vulnerability factors specifying protection from electronic countermeasures for appropriate systems in a threat environment should be addressed. Appropriate ECCM technology should be incorporated to reduce the possibilities of intercept, deception and effects of jamming.	<u>5</u>
9. <u>Maintenance Characteristics.</u> State those maintenance characteristics operationally required by the user. Give consideration to:	<u>6</u>
a. Design to permit ease of accessibility to often-checked items.	<u>7</u>
b. Incorporation of "go/no-go" simple test equipment or procedures.	<u>8</u>
c. Use of quick disconnect type fittings on electrical connections and harnesses or other interface surfaces where design will permit use of quick disconnect fittings.	<u>9</u>
d. Type and level of maintenance support envisaged;	<u>10</u>
e.g., contract or in-house.	<u>11</u>
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10. <u>Human Engineering Characteristics.</u> State user require-	1
ments for compatibility with physical and mental capa-	2
bilities of operating personnel. For example:	3
a. Information needs for operator decisions; e.g.,	4
fields of view, warning alarms, and communications.	5
b. Procedures for allocating functions between man	6
and machine.	7
11. <u>Priority of Characteristics.</u> List physical, maintenance,	8
and human engineering characteristics in relative order of	9
priority to the user.	10
12. <u>Quantitative and Qualitative Personnel Considerations.</u>	11
In consonance with the stated operational concept for the	12
installation, state the user requirements for personnel to	13
maintain and operate the material. For example:	14
a. Total personnel requirements, saving in personnel,	15
or generation of additional personnel requirements.	16
Any increase in manpower as a result of this action	17
must be in accordance with JCS MOP 173, 7 May 1981,	18
"Manpower for Joint and International Activities,"	19
if applicable.	20
b. Description of requirements for new skills, know-	21
ledge, and special arts.	22
13. <u>Training Considerations.</u> State training requirements	23
envisaged by the user to be necessary, including, if	24
possible, the concept of how training should be accom-	25
plished; e.g., school, contractor.	26
SECTION II. ASSOCIATED CONSIDERATIONS	27
14. <u>Related Capabilities.</u> Include requirements for other	28
new capabilities and special requirements that will be	29
necessary as a result of the ROC, such as COMSEC equipment,	30
additional electric power, and environmental control needs.	31

ROCs for ADP equipment will include comments as to related software requirements.	<u>1</u>
	<u>2</u>
15. <u>Additional Comments.</u> Include any other information not included in the foregoing that may be helpful in understanding the requirements.	<u>3</u>
	<u>4</u>
	<u>5</u>
PART III (REQUIRED)	<u>6</u>
DISTRIBUTION OF ROC	<u>7</u>
a. Action copies:	<u>8</u>
Chairman, Joint Chiefs of Staff	<u>9</u>
OJCS (C3 Systems Directorate)	<u>10</u>
CINCAD	<u>11</u>
CINCLANT	<u>12</u>
USCINCEUR	<u>13</u>
CINCMAC	<u>14</u>
CINCPAC	<u>15</u>
USCINCREC	<u>16</u>
USCINCSO	<u>17</u>
CINCSAC	<u>18</u>
Commander, Rapid Deployment Joint Task Force	<u>19</u>
b. Information copies:	<u>20</u>
Chief of Staff, US Army	<u>21</u>
Chief of Naval Operations	<u>22</u>
Chief of Staff, US Air Force	<u>23</u>
Commandant, US Marine Corps	<u>24</u>
Director, DCA	<u>25</u>
Director, DIA	<u>26</u>
Director, NSA/Chief, CSS	<u>27</u>
Director, DLA	<u>28</u>
Director, DMA	<u>29</u>
Director, DNA	<u>30</u>
	<u>31</u>

APPENDIX D

PROCEDURES FOR THE MODIFICATION, IMPROVEMENT, AND
INTRODUCTION OF JOINT COMMAND AND CONTROL SYSTEMS

1. Purpose. To provide policy and to assign responsibility
for the modification and improvement of joint command and
control systems.

2. Policy and Procedures

a. The operational requirements validated by the Services
and agencies in accordance with Service and agency pro-
cedures will be evaluated and coordinated in accordance
with references 6, 7, and 20, Appendix A, and provided to
the Joint Chiefs of Staff in keeping with provisions of
those references.

b. The following guidance applies to the processing of
the required operational capabilities (ROCs) by the Joint
Chiefs of Staff, including the ROCs from unified and
specified commands and the National Military Command
System. Requirements shared by the commanders of several
unified and specified commands pertaining to a common
capability will be processed as multi-command ROCs (MROCS).

(1) ROCs will be documented in the format of Appendix C
and submitted to the Chairman, Joint Chiefs of Staff,
normally as part of the Command and Control System
Master Plan (Appendix B). NMCS ROCs will be submitted
individually to the Chairman, Joint Chiefs of Staff.
Significant time-sensitive ROCs can be submitted at any
time.

(a) The format of Appendix C permits submission of
a qualitative description of the required capability
(Part I, Appendix C). In the event that more
detailed information is available, the quantitative

optional Part II of Appendix C may be submitted 1
simultaneously. Part III of Appendix C lists the 2
required distribution of the ROC. Part III insures 3
early coordination and provides a source of comments 4
for the Chairman, Joint Chiefs of Staff. 5

(b) Action addressees of ROCs will provide comments 6
to the Chairman, Joint Chiefs of Staff, within 60 7
days of receipt of the ROC. Comments of the 8
commanders of the unified and specified commands 9
should include a statement of applicability of the 10
requirement to their C2 system. 11

(c) Information addresses are invited to submit 12
comments to OJCS. Comments concerning existing or 13
planned programs that might satisfy the requirement 14
are particularly desired. 15

(2) The Director for C3 Systems OJCS, will process ROCs 16
of the commanders of unified and specified commands and 17
of the NMCS submitted to the Chairman, Joint Chiefs of 18
Staff, for validation in accordance with the following 19
procedures. Upon receipt, the Director, C3 System, will: 20

(a) Review the ROC for general suitability and con- 21
sistency with goals for developing C2 systems. The 22
applicability to other unified or specified commands 23
will be addressed during consideration of initial 24
comments from the DOD components. The review 25
includes verification that the ROC is a new require- 26
ment and does not duplicate previous requirements. 27
Send a memorandum to the originator, normally 28
within 90 days, acknowledging the ROC and, where 29
appropriate, requesting clarification or further 30
information. 31

(b) Forward the ROC to the designated Service or agency to conduct a preliminary estimate or a TA/CE in the format of Appendix E. Responsibility for performing this evaluation will belong to the Service responsible for support of the respective unified or specified command unless it is determined by formal coordination or applicable directive (e.g., DCA for DCS matters) that responsibility should be assigned to another component.

(3) The designated Service or agency will evaluate the requirement in terms of potential candidate solutions, considering their operational utility, their technical feasibility, other programs, and economic soundness, using Service/agency procedures. The results of the preliminary estimate or Technical Analysis/Cost Estimate (TA/CE) will be forwarded to the Director for C3 Systems, OJCS, and will be used as the basis for validation. Information copies of completed preliminary estimates or TA/CEs will be provided in accordance with Appendix C distribution.

(4) When it is determined that the requirement meets the criteria of DOD Directive 5000.2, OJCS will forward the validated requirement to the Defense Acquisition Executive as a Mission Element Needs Statement.

(5) The DCA will provide technical guidance and recommendations to the Service or Defense agency evaluating the ROC. Other Services and agencies will provide appropriate assistance and comment.

(6) Based upon the review of the preliminary estimate or of the TA/CE above, the OJCS will initiate the validation process. The validation process is a joint

action which identifies the preferred solution to the
requirement, or any portion thereof, and the estimated
funding profile, and assigns the Executive Agent.

(a) If the ROC is not validated, the originator will
be informed and reasons for the nonvalidation will
be given.

(b) If the ROC is validated, the budgeting/program-
ming actions below will be initiated.

(7) The Chairman, Joint Chiefs of Staff, will make
recommendations to the Secretary of Defense for satisfac-
tion of the ROC if required.

(8) Selected programs for validated ROCs will be
immediately forwarded to the appropriate Service or
agency for initial PPBS actions.

3. Responsibilities

a. Commanders of the Unified and Specified Commands

Identify and document requirements for modifications and
improvements to their C2 systems in the format of Appendix

C. Forward ROCs to the Chairman, Joint Chiefs of Staff,
for consideration and to the other commanders of unified
and specified commands, the Chiefs of the Services, and
the Directors of Defense agencies for information.

Forward comments on ROCs received from other commands to
the Chairman, Joint Chiefs of Staff, within 60 days of
receipt. Comments should specifically address the
applicability of the ROC to the command.

b. Joint Chiefs of Staff. Review ROCs for validation
and recommend programs for their satisfaction.

c. Chiefs of the Services; Directors of the Defense
Agencies

(1) Take action, when assigned, to evaluate ROCs submitted for validation to the Chairman, Joint Chiefs of Staff. Support, review, and comment on the evaluation efforts of other components. Determine if existing programs, with modification if needed, could satisfy the requirement.	<u>1</u> <u>2</u> <u>3</u> <u>4</u> <u>5</u> <u>6</u>
(2) Program, budget, and fund for fulfillment of those improvements for which the Service/Defense agency has funding responsibility.	<u>7</u> <u>8</u> <u>9</u>
(3) For out-of-cycle requirements for which the Service or agency has funding responsibility, prepare a Program Change Request, coordinated with the Chairman, Joint Chiefs of Staff, for forwarding to the Secretary of Defense.	<u>10</u> <u>11</u> <u>12</u> <u>13</u> <u>14</u>
(4) Approval of funding may be made for certain programs without prior approval of the Secretary of Defense provided overall strengths are not changed, if Total Obligation Authority changes are within limits imposed by DoD Instruction 7250.10, and if previous decisions by the Secretary of Defense are not affected.	<u>15</u> <u>16</u> <u>17</u> <u>18</u> <u>19</u> <u>20</u> <u>21</u>
d. <u>Chairman, Joint Chiefs of Staff.</u> Develop and validate ROCs for modification and improvement of the NMCS and submit them to the Secretary of Defense for approval.	<u>22</u> <u>23</u> <u>24</u> <u>25</u> <u>26</u> <u>27</u> <u>28</u> <u>29</u> <u>30</u> <u>31</u>

APPENDIX E	<u>1</u>
FORMAT FOR TECHNICAL ANALYSIS AND COST	<u>2</u>
ESTIMATE FOR OPERATIONAL REQUIREMENTS	<u>3</u>
(The following is the format for a Technical Analysis	<u>4</u>
and Cost Estimate (TA/CE) submission.)	<u>5</u>
EXECUTIVE SUMMARY	<u>6</u>
(The Executive Summary should be a stand-alone section of the	<u>7</u>
TA/CE.)	<u>8</u>
1. <u>Scope</u> . State the purpose of the TA/CE being summarized,	<u>9</u>
identify the specific requirement to which the TA/CE is	<u>10</u>
related, and provide a brief description of the scope of	<u>11</u>
the TA/CE.	<u>12</u>
2. <u>Background</u> . Include all essential information required	<u>13</u>
to understand the document. Present material in a logical	<u>14</u>
and sequential manner.	<u>15</u>
3. <u>Summary</u> . Summarize the facts presented in the TA/CE.	<u>16</u>
This should include all alternatives and should not be a	<u>17</u>
generally worded abstract.	<u>18</u>
4. <u>Conclusions and Recommendations</u> . Point out the most	<u>19</u>
desirable course of action (best alternative) and summarize	<u>20</u>
the reasons for selecting that alternative, including any	<u>21</u>
associated risks. Alternatives must address communications	<u>22</u>
requirements, if applicable. Recommendations will not be	<u>23</u>
limited to the alternative but may include other items, if	<u>24</u>
appropriate (further studies, etc.).	<u>25</u>
TECHNICAL ANALYSIS/COST ESTIMATE	<u>26</u>
1. <u>Introduction</u> . Include the objective of the TA/CE and	<u>27</u>
detailed background information about the subject as well	<u>28</u>
as such items as threats, desired goals, existing capa-	<u>29</u>
bilities, etc.	<u>30</u>
	<u>31</u>

2. <u>Technical Feasibility Factors Analysis.</u> Include the	<u>1</u>
technical feasibility of developing and producing capa-	<u>2</u>
bilities to satisfy the requirements within the timeframe	<u>3</u>
specified. Include identification and assessment of	<u>4</u>
technical risks that may influence effectiveness, cost, and	<u>5</u>
operational date of the requirements.	<u>6</u>
3. <u>Alternatives.</u> Present each alternative (description, risks,	<u>7</u>
costs, rough schedules, advantages, disadvantages). Analyze	<u>8</u>
alternatives, including benefit and cost estimate, lease	<u>9</u>
versus buy, etc. Only the two, or at most three, most	<u>10</u>
viable alternatives should be presented. Other alternatives	<u>11</u>
and the rationale for rejection may be presented concisely to	<u>12</u>
show that they were considered.	<u>13</u>
4. <u>Recommended Alternative.</u> Address conceptual information	<u>14</u>
to the extent feasible, including, if possible:	<u>15</u>
a. <u>Project Engineering Concept.</u> Scope of the recommended	<u>16</u>
alternative, its general configuration, and other tech-	<u>17</u>
nical characteristics. Relationship between this	<u>18</u>
approach and ongoing or programmed future projects/pro-	<u>19</u>
grams will be discussed. Included, as available, will	<u>20</u>
be appropriate consideration of the following:	<u>21</u>
(1) Summary of required equipment.	<u>22</u>
(2) Statement of the interface and integration re-	<u>23</u>
quirements.	<u>24</u>
(3) Identification of required documentation.	<u>25</u>
(4) Required ancillary equipment.	<u>26</u>
(5) Security requirements.	<u>27</u>
(6) Facility requirements.	<u>28</u>
(7) Engineering support requirements.	<u>29</u>
(8) Communications support requirements.	<u>30</u>
(9) Electromagnetic pulse requirement.	<u>31</u>

b. <u>Project Implementation Concept.</u> Nominations of the	<u>1</u>
Service or Defense agency to implement the operational	<u>2</u>
requirement. Training and logistic support to be	<u>3</u>
furnished as part of the implementation phase	<u>4</u>
and initial operational capability will be addressed.	<u>5</u>
An implementation schedule to include key milestones	<u>6</u>
and the relationships between key events will be pro-	<u>7</u>
vided if available.	<u>8</u>
c. <u>Conclusion.</u> A general conclusion supporting or	<u>9</u>
suggesting information to the ROC, with accompanying	<u>10</u>
rationale.	<u>11</u>
5. <u>Cost Estimate.</u> It is recognized that complete and	<u>12</u>
detailed cost and manpower information may not be readily	<u>13</u>
available at this stage of development. To the extent it	<u>14</u>
is available, it should be presented with an indication	<u>15</u>
of whether "current year" or "then year" (escalated) dollars	<u>16</u>
are used.	<u>17</u>
a. <u>Summary of Cost and Manpower Estimate.*</u> Provide a	<u>18</u>
breakdown for each funding Service, Defense agency, or	<u>19</u>
other funding source, as applicable, in the format pre-	<u>20</u>
scribed below:	<u>21</u>
<u>(Service or funding source)**</u> <u>(PE***)</u>	<u>22</u>
Prior Current Budget OutYears	<u>23</u>
Yrs Yr FY FY FY FY	<u>24</u>
	<u>25</u>
	<u>26</u>
	<u>27</u>
* Reflect only the additive costs resulting from the	<u>28</u>
improvement or addition of facilities covered by this	
plan. Do not include previously existing ongoing	<u>29</u>
costs.	
** Insert the appropriate Service, Defense agency, or other	<u>30</u>
funding source.	
*** Insert applicable Program Element number here.	<u>31</u>

Funds (\$ in thousands):	<u>1</u>
	<u>2</u>
R&D	<u>3</u>
Procurement	<u>4</u>
Construction	<u>5</u>
O&M*	<u>6</u>
Military Pay	<u>7</u>
Manpower	<u>8</u>
Military	<u>9</u>
Officers	<u>10</u>
Enlisted	<u>11</u>
Civilian	<u>12</u>
b. <u>Rationale.</u> Explain briefly the basis for computations, phasing of cost and manpower estimates in relation to work schedule, estimated procurement lead-time, and major items of cost (lease, contractual operations, ADP, other station facilities, transmission media, etc.). Note anticipated problem areas, if any.	<u>13</u>
c. <u>Cost Offsets Summary (if applicable)</u>	<u>14</u>
<u>Description</u>	<u>15</u>
Prior Yrs	<u>16</u>
Current Yr	<u>17</u>
Budget FY	<u>18</u>
Outyears FY	<u>19</u>
Outyears FY	<u>20</u>
Outyears FY	<u>21</u>
Outyears FY	<u>22</u>
One-time cost (list)	<u>23</u>
Recurring costs (list)	<u>24</u>
	<u>25</u>
	<u>26</u>
	<u>27</u>
	<u>28</u>
	<u>29</u>
	<u>30</u>
* Breakout by object class identification; e.g., civilian personnel, supplies, operation and maintenance contracts.	<u>31</u>

APPENDIX F	<u>1</u>
COMMAND AND CONTROL FIVE YEAR SUMMARY PLAN	<u>2</u>
1. <u>General</u>	<u>3</u>
a. The Director for C3 Systems, OJCS, is charged with	<u>4</u>
developing programs for the Joint Chiefs of Staff to	<u>5</u>
insure adequate command, control, and communications	<u>6</u>
support to the commanders of unified and specified	<u>7</u>
commands and the NCA for joint and combined operations;	<u>8</u>
conceptualizing future systems design; and providing	<u>9</u>
direction to improve C2. In addition, the Director,	<u>10</u>
C3 Systems, OJCS, is responsible for determining	<u>11</u>
satisfaction of individual Service requirements in joint	<u>12</u>
systems and for coordinating requirements, evaluating	<u>13</u>
alternatives, and recommending courses of action in the	<u>14</u>
assignment of responsibilities and allocation of resources	<u>15</u>
to agencies, the Military Services, and unified and	<u>16</u>
specified commands to accomplish planning and programming.	<u>17</u>
A major management tool to carry out these responsibilities	<u>18</u>
is the Command and Control Five Year Summary Plan (C2FYSP).	<u>19</u>
2. <u>Scope of the Command and Control Five Year Summary Plan</u>	<u>20</u>
a. The scope of the C2FYSP will encompass the validated	<u>21</u>
requirements for joint C2 systems, and for systems/equip-	<u>22</u>
ment with joint implications, as defined in subparagraph	<u>23</u>
4d(2) of the Policy and Procedures for Management of	<u>24</u>
Joint Command and Control systems. The documents listed	<u>25</u>
in paragraph 5 below identify many such systems/equipment.	<u>26</u>
b. The C2FYSP will not routinely develop separate	<u>27</u>
threats, objectives, missions, or requirements. However,	<u>28</u>
the comparative analysis of the documents in paragraph 5	<u>29</u>
will identify and recommend solutions for inconsistencies	<u>30</u>
in threat, objectives, or missions and deficiencies,	<u>31</u>
inconsistencies, or duplications in stated requirements.	<u>32</u>

c. The C2FYSP will display validated quantities, OSD approved funding, and phasing for all items needed to provide an end-to-end mission capability.	<u>1</u> <u>2</u> <u>3</u>
d. The C2FYSP may include recommendations of an advisory nature. These recommendations should highlight weaknesses of joint C2 systems in the areas of joint and allied interoperability as well as survivability. Cross-Service prioritization of Service-unique programs/resources with joint implications will be avoided.	<u>4</u> <u>5</u> <u>6</u> <u>7</u> <u>8</u> <u>9</u>
3. <u>Structure of the Command and Control Five Year Summary Plan</u>	<u>10</u>
a. The C2FYSP will consist of a data base and a summary document.	<u>11</u> <u>12</u>
b. The data base will consist of program and project descriptions for each of the programs and projects discussed in subparagraph 2a, above. The data base is to be available in a convenient form for use as reference by OSD, OJCS, and Service decisionmakers and for deriving the contents of the C2FYSP summary document.	<u>13</u> <u>14</u> <u>15</u> <u>16</u> <u>17</u> <u>18</u>
c. The summary document will be a single volume consisting of:	<u>19</u> <u>20</u>
(1) A summary of the comparative analysis of the plans examined, and appropriate recommendations.	<u>21</u> <u>22</u>
(2) A statistical summary of the data in subparagraph 2c for the projects considered, aggregated along recognized PPBS classifications, mission-related areas, or other categories found appropriate during development of the C2FYSP.	<u>23</u> <u>24</u> <u>25</u> <u>26</u> <u>27</u>
(3) A short descriptive summary of the contents of each entry in the statistical summaries, maintaining traceability to individual projects and programs in the data base and highlighting issues.	<u>28</u> <u>29</u> <u>30</u> <u>31</u>

4. <u>Preparation of the C2FYSP.</u> The Director for C3 Systems,	<u>1</u>
OJCS, is responsible for the preparation of a draft of the	<u>2</u>
C2FYSP in accordance with the guidelines above. Preparation	<u>3</u>
of the C2FYSP will not be used as a basis for increased	<u>4</u>
joint manpower authorizations. The OJCS will distribute the	<u>5</u>
C2FYSP to the Services and agencies for comment. Draft	<u>6</u>
C2FYSP will be revised/updated, as required; will be approved	<u>7</u>
by the Joint Chiefs of Staff as part of the PPBS; and will	<u>8</u>
serve as a major input to Annex C (Command, Control, and	<u>9</u>
Communications) to the JSPD. The Services are requested to	<u>10</u>
provide available information as needed for developing the	<u>11</u>
C2FYSP.	<u>12</u>
5. <u>INITIAL LISTING OF EXISTING DOCUMENTS</u>	<u>13</u>
NATIONAL MILITARY COMMAND SYSTEM FIVE YEAR MASTER OBJECTIVES	<u>14</u>
PLAN	<u>15</u>
MEECN MASTER PLAN	<u>16</u>
WWMCCS FIVE YEAR PLAN	<u>17</u>
WWMCCS SURVIVABILITY R&D PLAN	<u>18</u>
ENHANCED POSTATTACK WWMCCS CAPABILITY PLAN	<u>19</u>
CINCSAC CONNECTIVITY STUDY	<u>20</u>
CNO CONNECTIVITY STUDY	<u>21</u>
CINCSAC STRATEGIC COMMUNICATIONS CONNECTIVITY STUDY	<u>22</u>
SECURE RESERVE FORCE TARGETING STUDY	<u>23</u>
DCA RECONSTITUTION STUDY	<u>24</u>
WWMCCS SELECTED ARCHITECTURE	<u>25</u>
DEFENSE COMMUNICATIONS SYSTEM FIVE-YEAR PROGRAM	<u>26</u>
DEFENSE COMMUNICATIONS SYSTEM TEN-YEAR PLAN	<u>27</u>
AIR DEFENSE MASTER PLAN	<u>28</u>
DOD INTELLIGENCE INFORMATION SYSTEMS MASTER PLAN	<u>29</u>
DEFENSE INTELLIGENCE PLAN	<u>30</u>
TACTICAL NUCLEAR FORCES C3 SYSTEM IMPROVEMENT PLAN	<u>31</u>
TELECOMMUNICATIONS PLAN FOR IMPROVING COMMUNICATIONS IN	
KOREA	

COMMUNICATIONS SECURITY PLAN FOR IMPROVING COMMUNICATIONS SECURITY IN KOREA	<u>1</u>
C2 SYSTEM MASTER PLANS OF THE CINCs (8 documents)	<u>2</u>
DEFENSE SCIENCE BOARD TASK FORCE ON ENDURING STRATEGIC C3	<u>3</u>
HIGH ALTITUDE ELECTROMAGNETIC PULSE STUDIES	<u>4</u>
MILITARY SATELLITE OFFICE TECHNICAL DEVELOPMENT PLAN	<u>5</u>
POSTATTACK RECONSTITUTION OF COMMUNICATIONS PHASE II STUDY	<u>6</u>
NMCS IMPROVEMENT ALTERNATIVES FOR SURVIVABILITY STUDY	<u>7</u>
MILITARY SATELLITE COMMUNICATIONS ARCHITECTURE	<u>8</u>
DCA SECURE VOICE IMPROVEMENT PROGRAM	<u>9</u>
WWMCCS INFORMATION SYSTEM MODERNIZATION PLAN	<u>10</u>
WWMCCS INFORMATION SYSTEM ENGINEERING MANAGEMENT PLAN	<u>11</u>
WWMCCS INTERCOMPUTER NETWORK IMPLEMENTATION PLAN	<u>12</u>
WIN/AUTODIN II SUPPORT PLAN	<u>13</u>
STANDARD DOD NETWORK FRONT END MANAGEMENT/TECHNICAL APPROACH PLAN	<u>14</u>
DCA R&D PLANNING SUMMARIES	<u>15</u>
E-4 ADP IMPLEMENTATION PLAN	<u>16</u>
E-4B JOINT USERS PRIORITIZED LISTING	<u>17</u>
TRI-TAC PROCUREMENT PLAN	<u>18</u>
JOINT NAVIGATION PLAN	<u>19</u>
DEFENSE GUIDANCE	<u>20</u>
ASD(C3I)/DUSD(PR) C3 PROGRAM GUIDANCE	<u>21</u>
JSPD	<u>22</u>
JSCP	<u>23</u>
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